

**RAN-2411000901030002****B.C.A. (Sem.- I) Examination November - 2025****Minor (Paper - 103-02) Introduction to Artificial Intelligence (New)****[Total Marks: 50****સૂચના : / Instructions**

(1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.

Fill up strictly the above details on your answer book

Seat No.:

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Student's Signature

Q.I. [A] Answer Following : (Any Five)**[05]**

- i) How should colors be used in Data Visualization?
 - a) To create a visually appealing chart without regard to meaning
 - b) To highlight key areas and differentiate between data categories
 - c) To confuse the viewer with multiple shades
 - d) To make the chart as colorful as possible
- ii) Which of the following tools is integrated into Microsoft Office Suite for data analysis and visualization?
 - a) R
 - b) Python
 - c) Power BI
 - d) Tableau
- iii) What is the ETL process in Business Intelligence?
 - a) Extracting, Transforming, and Loading data into a Data Warehouse
 - b) Executing, Testing, and Logging data
 - c) Evaluating, Translating, and Launching reports
 - d) Estimating, Tracking, and Logging transactions
- iv) What is the primary focus of Data Science?
 - a) Building physical models
 - b) Extracting knowledge and insights from data
 - c) Designing new programming languages
 - d) Managing computer networks
- v) In what way is AI used within Data Science?
 - a) To build physical models
 - b) To analyze complex data patterns
 - c) To design computer hardware
 - d) To manage network security
- vi) Which technology helps in analysing complex relationships within data by simulating brain functions?
 - a) Decision Trees
 - b) Neural Networks
 - c) K-means Clustering
 - d) Linear Regression
- vii) What role does AI play in predictive maintenance for IoT devices?
 - a) Generating reports
 - b) Performing routine maintenance tasks
 - c) Predicting potential failures before they occur based on data analysis
 - d) Upgrading hardware

- Q.1. [B] Answer following in short: (Any five) [05]**
- 1) Why is Business Intelligence important?
 - 2) What is a heatmap in Data Visualization?
 - 3) What is the difference between BI and Data Analytics?
 - 4) Why is data accuracy important in Data Visualization?
 - 5) What is machine learning?
 - 6) What is unsupervised learning?
 - 7) What is primary goal of A.I.?
- Q.2. Answer Following: [08]**
- [A] Explain the concept of Computer Vision.
- OR**
- [A] Explain Supervised Machine Learning with a basic example to build linear Regression using a dataset.
- [B] What is Robotics? Which are various application areas of Robotics? [06]
- Q.3. Answer Following: [08]**
- [A] Explain various emerging technologies used in A.I. and Data Science with appropriate examples.
- OR**
- [A] Discuss various emerging technologies in the field of Data Science.
- [B] Explain the use and functionality of Big Data in context to Hadoop and Spark. [06]
- Q.4. Answer Following: (Any Two) [12]**
- 1) Skills and Competencies Required for Careers in AI and Data Analytics.
 - 2) Ethical Issues in Data Science and AI
 - 3) Future Trends and Career Opportunities in the Field of AI.
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